

What is claimed is:

- 5 1. A method of controlling the behavior of a cell through modulation of the processing of a selected wild-type mRNA target within said cell, said method comprising binding to said target an antisense compound which is specifically hybridizable with said mRNA target and which does not elicit cleavage of the mRNA target upon binding, so that processing of said mRNA target is modulated and
10 said behavior is controlled.
- 15 2. The method of claim 1 wherein said modulation of the processing of a selected wild-type mRNA target is modulation of splicing of said mRNA target.
- 20 3. The method of claim 2 wherein said antisense compound comprises at least one 2'-guanidinium, 2'-acetamido, 2'-carbamate, 2'-dimethylaminoethoxyethoxy, 2'-aminooxy, 3'-methylene phosphonate, peptide nucleic acid having a lysine residue at its C-terminus or peptide nucleic acid having an arginine residue at its C-terminus.
- 25 4. The method of claim 3 wherein said antisense compound comprises a 2'-guanidinium, 2'-acetamido, 2'-carbamate, 2'-dimethylaminoethoxyethoxy or 2'-aminooxy modification on substantially every sugar.
- 30 5. The method of claim 4 wherein said antisense compound comprises at least one phosphorothioate backbone linkage.
6. The method of claim 1 wherein said antisense compound is an antisense oligonucleotide.

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7. The method of claim 2 wherein said modulation of splicing is a redirection of splicing.

5 8. The method of claim 2 wherein said modulation of splicing results in an altered ratio of splice products.

9. The method of claim 2 wherein said modulation of splicing results in exclusion of one or more exons from the
10 mature mRNA.

10. The method of claim 9 wherein said antisense compound is targeted to at least a portion of an exon to be excluded.
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11. The method of claim 10 wherein said antisense compound is targeted to an intron-exon junction.

12. The method of claim 7 wherein said antisense
20 compound is targeted to at least a portion of a region up to 50 nucleobases upstream from a 5' splice site.

13. The method of claim 12 wherein said redirection of splicing is a decreased frequency of use of said 5'
25 splice site.

14. The method of claim 1 wherein said processing of a selected mRNA target is polyadenylation of said mRNA target.
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15. The method of claim 1 wherein said antisense compound is targeted to a polyadenylation signal or polyadenylation site.

16. The method of claim 1 wherein said processing of a selected wild-type cellular mRNA target is regulating stability of said mRNA target, by targeting said antisense compound to a sequence which controls the stability of said mRNA target.

17. The method of claim 1 wherein said antisense compound which does not support cleavage of the mRNA target upon binding contains at least one modification which increases binding affinity for the mRNA target and which increases nuclease resistance of the antisense compound.

18. The method of claim 1 wherein said antisense compound which does not support cleavage of the mRNA target upon binding contains at least one nucleoside having a 2' modification of its sugar moiety.

19. The method of claim 18 wherein every nucleoside of said antisense compound has a 2' modification of its sugar moiety.

20. The method of claim 18 wherein said 2' modification is selected from the group consisting of 2'-guanidinium, 2'-acetamido, 2'-carbamate, 2'-dimethylaminoethoxyethoxy and 2'-aminooxy.

21. The method of claim 1 wherein said antisense compound which does not support cleavage of the mRNA target upon binding comprises at least one modified backbone linkage other than a phosphorothioate backbone linkage.

22. The method of claim 21 wherein said antisense compound which does not support cleavage of the mRNA target

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upon binding comprises a plurality of modified backbone linkages other than phosphorothioate backbone linkages.

23. The method of claim 22 wherein said antisense
5 compound further comprises at least one phosphodiester or
phosphorothioate backbone linkage.

24. The method of claim 22 wherein said modified backbone linkages alternate with phosphodiester and/or phosphorothioate backbone linkages.

25. The method of claim 21 wherein substantially every backbone linkage is a modified backbone linkage other than a phosphorothioate linkage.

26. The method of claim 21 wherein said modified backbone linkage is a 3'-methylene phosphonate, peptide nucleic acid having a lysine residue at its C-terminus or peptide nucleic acid having an arginine residue at its C-terminus.

27. The method of claim 21 wherein said modified backbone linkage is a peptide nucleic acid, wherein said peptide nucleic acid has a cationic tail bound thereto.

28. The method of claim 27 wherein said cationic tail is lysine or arginine.

29. The method of claim 1 wherein said antisense
30 compound which does not support cleavage of the mRNA target
upon binding comprises at least one modified nucleobase.

30. The method of claim 29 wherein said modified nucleobase is a C-5 propyne.

31. The method of claim 8, wherein said altered ratio of splice products results from an increase or a decrease in the amount of a splice product encoding a membrane form of a protein relative to a soluble form of a protein.

32. The method of claim 31 wherein said protein is a receptor.

33. The method of claim 32, wherein said receptor is a hormone or cytokine receptor.